IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	ASPLIN	Examiner:	ADDIE
Serial No.:	09/687445	Group Art Unit:	3671
Filed:	October 13, 2000	Docket No.:	20158.0002US01
Title:	SLAB LEVELING SYSTEM AND METHOD		

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By: Justine L. Suleski
Name: Justine L. Suleski

APPELLANT'S BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
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Dear Sir:

This Brief is presented in support of the Notice of Appeal filed herewith from the rejection of claims 12-29 of the above-identified application, as set forth in the Office Action mailed March 17, 2009. Claims 12-29 have been twice rejected.

Please charge Deposit Account No. 50-3478 in the amount of $270.00 to cover the required fee for filing this Brief.

I. REAL PARTY IN INTEREST

The Real Party in Interest is Charles Asplin, an individual.

II. RELATED APPEALS AND INTERFERENCES

There are no prior or pending related appeals, interferences, or judicial proceedings.

III. STATUS OF CLAIMS

Claims 1-11 have been canceled.

Claims 12-29 are pending.

Claims 12-29 are the subject of this appeal and have been rejected under 35 USC 103(a).

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to final rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The claimed subject matter relates generally to methods of lifting and leveling slabs that have settled into the ground over time so as to become uneven. See page 1, lines 13-15. The methods utilize a pressurized media, such as compressed air, to raise the slab and create a cavity under the slab, and a second material different from the pressurized media, such as sand, to fill the cavity. See page 5, lines 18-23.

Independent claim 12

Independent claim 12 recites a method of lifting and leveling a slab by using compressed air to lift the slab and dried sand to stabilize and hold the slab in a desired position. See page 5, line 15 to page 6, line 1; Figures 6-8.

The method includes supplying a sand storage tank 16 filled with a well dried mason's sand, the storage tank having a sand outlet 20. See page 4, lines 13-14; page 8, lines 1-13; and Figure 1. A compressed air source 12 is supplied in fluid tight connection with the sand outlet. Page 8, lines 1-13. The sand and the compressed air are mixed in a mixing chamber 40. Page 10, line 21 to page 11, line 4; Figure 3. The sand and air mixture is then delivered to an injector gun 26 via an elongate fluid tight hose 24, the gun further having a gun nozzle 54. Page 11, lines 12-14 and page 12, lines 1-5; Figures 1 and 4.

The method also includes drilling a hole 72 in the slab 82 to be leveled, attaching the gun nozzle 54 to the drilled hole 72, and operating the injector gun in bursts so as to provide compressed air and sand. Page 13, lines 14-21; Figures 6-8.

The method includes lifting with air pressure, momentarily, the slab to a height above the desired final level with the compressed air supplied by the bursts, such that a settle cavity filled with compressed air sufficient to raise the slab above the ground is created between the slab and the ground until the compressed air escapes from the settle cavity allowing the slab to drop back in contact with the ground such that the slab is supported by the ground and the sand. Page 13, lines 20-24. The ground is leveled with the well dried mason's sand carried by the compressed air in the burst such that the well dried mason's sand may move freely within the settle cavity momentarily created by the compressed air. Page 13, line 24 to page 14, line 2. The lifting and

leveling steps are repeated until the slab is at the desired level and resting upon the well dried mason's sand. Page 14, lines 2-4.

Independent claim 17

Independent claim 17 recites a method of lifting and leveling a slab by using compressed air to lift the slab and dried sand to stabilize and hold the slab in a desired position. See page 5, line 15 to page 6, line 1; Figures 6-8.

The method includes:

drilling a strategically placed hole 72 in the slab 82; (Page 13, lines 14-16; Figure 7)

supplying a sand storage tank 16 filled with sand, the storage tank having a sand outlet 20; (See page 4, lines 13-14; page 8, lines 1-13; and Figure 1)

supplying a compressed air source 12 in fluid tight connection with the sand outlet; (Page 8, lines 1-13)

mixing the sand and the compressed air in a mixing chamber 40, the mixing chamber having a smaller air source hose 42 fitted inside of a larger diameter sand outlet 44, 46 such that the smaller air source extends into the center section of the larger diameter sand outlet so as to create a venturi effect; (Page 10, lines 7-17; page 10, line 21 to page 11, line 4; Figure 3)

delivering the sand and air mixture to an injector gun 26 via an elongate fluid tight hose 24, the injector gun further having a gun nozzle 54 for connection with the hole; (Page 11, lines 12-14 and page 12, lines 1-5; Figures 1 and 4)

attaching the gun nozzle to the drilled hole; (Page 13, lines 17-19; Figure 8)

operating the injector gun so as to provide compressed air and well dried mason's sand; (Page 13, line 19 to page 14, line 2)

lifting with air pressure, momentarily, the slab to a height above the desired final level with the compressed air supplied by the injector gun, such that a settle cavity filled with compressed air sufficient to raise the slab above the ground is created between the slab and the ground until the compressed air escapes from the settle cavity allowing the slab to drop back in contact with the ground such that the slab is supported by the ground and the sand; (Page 13, lines 20-24)

leveling the ground with the well dried mason's sand carried by the compressed air such that the well dried mason's sand may move freely within the settle cavity momentarily created by the compressed air; (Page 13, line 24 to page 14, line 2)

and repeating the lifting and leveling steps until the slab is at the desired level and resting upon the well dried mason's sand. (Page 14, lines 2-4)

Independent claim 22

Independent claim 22 recites a method of lifting and leveling a slab 82. Page 1, lines 13-15.

The method includes:

drilling a hole 72 through the slab 82 to be leveled; (Page 13, lines 14-16; Figure 7)

mixing sand and compressed air in a venturi chamber 22 to create a compressed air and sand mixture; (Page 8, lines 14-16)

introducing the compressed air and sand mixture in a first burst underneath the slab via a nozzle 54 that is inserted into the hole in a manner to create an airtight seal between the nozzle and the slab, the nozzle not penetrating into ground 70 underneath the slab, wherein the compressed air of the mixture of the burst raises the slab upward to form a cavity 74 between the slab and ground and the sand of the mixture of the burst partially fills the cavity; (Page 5, lines 13-15; Page 13, line 20 to page 14, line 2; Figure 8)

and repeating the introduction of the compressed air and sand mixture in one or more additional bursts underneath the slab until the slab is at the desired level and resting upon the sand. (Page 14, lines 2-4)

Independent claim 25

Independent claim 25 recites a method of lifting and leveling a slab 82. Page 1, lines 13-15.

The method includes:

introducing a pressurized fluid media underneath the slab so that the introduced pressurized fluid media lifts the slab upward to form a cavity 74 under the slab; (Page 5, lines 18-22)

and introducing dried material different from the pressurized media into the cavity to at least partially fill the cavity. (Page 4, lines 13-14; Page 5, lines 22-23)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 12-18, 22 and 24-29 are unpatentable under 35 USC 103(a) over US 1943914 to Flock in view of US 5860763 to Asplin (Asplin '763) and US 5795108 to Lightle.

2. Whether claims 18-21 and 23 are unpatentable under 35 USC 103(a) over Flock, Asplin '763 and Lightle, and further in view of US 1915032 to Poulter.

3. Whether claims 12, 17, 18, and 25-29 are unpatentable under 35 USC 103(a) over Flock and US 5561914 to Asplin (Asplin '914).

4. Whether claims 19-24 are unpatentable under 35 USC 103(a) over Flock and Asplin '914, and further in view of Poulter.

VII. ARGUMENT

Appellant notes that claim 18 is indicated as being rejected over Flock, Asplin '763 and Lightle, but also indicated as being rejected over Flock, Asplin '763, Lightle, and Poulter. For purposes of this Brief, Appellant will assume that claim 18 is rejected over Flock, Asplin '763 and Lightle, and that it is claims 19-21 and 23 that are rejected over Flock, Asplin '763, Lightle, and Poulter.

In addition, claim 20 is discussed on page 5 of the action under the rejection in view of Flock, Asplin '763 and Lightle. However, claim 20 is not indicated as being rejected in view of Flock, Asplin '763 and Lightle. Instead, claim 20 is said to be rejected in view of Flock, Asplin '763, Lightle and Poulter. For purposes of this Brief, Appellant will assume that claim 20 is rejected over Flock, Asplin '763, Lightle, and Poulter.

1. 35 U.S.C. 103(a) rejection of claims 12-18, 22 and 24-29 over Flock, Asplin '763 and Lightle

Independent claim 12 arguments

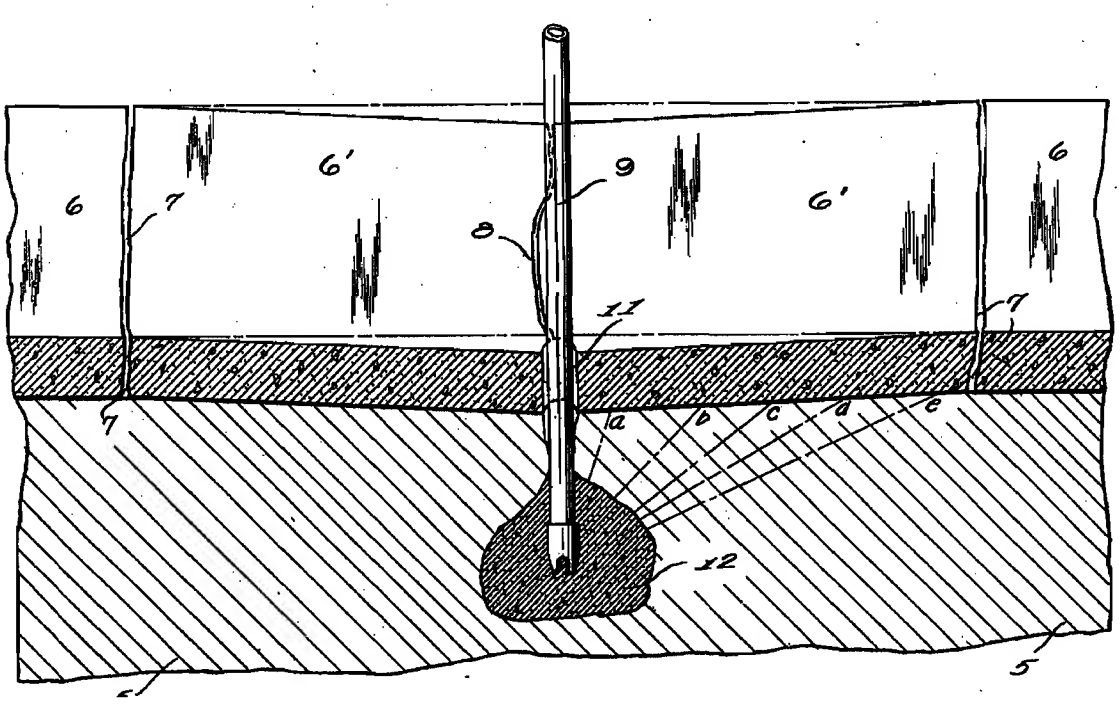
Appellant respectfully submits that Flock, Asplin '763 and Lightle do not teach or suggest a method of lifting and leveling a slab by using compressed air to lift the slab and dried sand to stabilize and hold the slab in a desired position as claimed.

A) Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest lifting with compressed air to create a settle cavity between the slab and the ground, leveling the ground with well dried mason's sand carried by the compressed air, and repeating the lifting and leveling steps until the slab is at the desired level.

Flock is characterized in the rejection as lifting and leveling a slab using compressed air to lift the slab. This is incorrect. Flock does not disclose the use of compressed air to lift the slab. While Flock does disclose that material is forced under the slab, there is no disclosure that the injected material is carried by or mixed with compressed air. Therefore, Flock does not lift the slab with compressed air.

Furthermore, the injected material of Flock does not lift the slab such that a settle cavity is created between the slab and the ground. As clearly explained in Flock, the tip of the filling stem 9 is inserted a distance into the earth beneath the slab 6'. Page 1, lines 87-90 and 95-97; page 2, lines 34-36. When the filling material is injected, it fills up any subterranean cavities or fissures, and then causes the surrounding earth to become compacted. Page 2, lines 19-22. Once the earth has reached a substantially incompressible state, it will react against the subsoil and transmit the filling pressure to the lower side of the pavement. Page 2, lines 22-26. Pressure forces are transmitted to points a, b, c, d, e through the soil, with each force having a vertical lifting component tending to lift the sunken section 6'. Page 2, lines 26-32.

Figure 1 of Flock explaining this concept is copied below. The filling stem 9 is inserted into the soil 5. Injected fill material 12 fills any cavities, and acts against the soil 5. The soil 5 then transmits the vertical pressure forces to points a, b, c, d, e so as to lift the slab 6'.



A similar concept is disclosed in Figure 4 of Flock, where injected material 12 fills any subterranean cavities or fissures, compacts the surrounding soil 5, and lifting forces are transmitted through the soil 5 to lift the slab 6'.

At no time in Flock is the slab lifted to create a settle cavity between the slab and the soil. In fact, it appears from Flock that the slab 6' always rests on top of the soil 5. This is consistent with the operation of Flock which relies on the soil 5 to lift the slab 6' upward. There is no clear disclosure in Flock that injected material lifts the slab upward to create a settle cavity.

Asplin '763 teaches using hydraulic lifting towers or jacks 12 to lift a sunken slab to create a fill area, followed by injection of mason's sand carried by compressed air using a sandblaster wand 40. Column 2, lines 42-52; column 4, lines 25-33; Figures 6-8. Asplin does not teach lifting a slab using compressed air to create a settle cavity.

Lightle teaches a mechanism for moving material such as sand using compressed air. Column 1, lines 6-9; column 2, lines 8-15. The sand is used to fill a sand trap on a golf course. Lightle does not teach lifting a slab using compressed air to create a settle cavity.

Therefore, Flock, Asplin '763 and Lightle do not teach or suggest lifting a slab with compressed air to create a settle cavity between the slab and the ground, and leveling the ground with well dried mason's sand carried by the compressed air.

B) In addition, Appellant respectfully submits that Flock does not teach supplying a storage tank filled with aggregate such as earth or clay, or supplying a pressure source in fluid tight connection with the storage tank, as asserted in the rejection. Although Flock discloses that the fill material is injected under pressure, where the material comes from and how the pressure is created is simply not disclosed. It is possible that the fill material comes from a source other than a storage tank, such as a loose pile of aggregate. Further, the pressure could be created by means other than a compressed air source in fluid tight connection with a sand outlet of the storage tank. For example, a mechanical ramming effect such as taught in Figure 4 of Flock, could be used.

The rejection also asserts that Asplin '763 discloses sand provided in a drying/storage hopper having a shut-off valve, referring to column 2, lines 13-36. Appellant cannot find any

disclosure of a hopper in Asplin '763, either at column 2, lines 13-36 or at any location in Asplin '763. Asplin '763 is silent as to where the sand comes from, and whether it comes from a drying/storage hopper having a shut-off valve.

Therefore, this aspect of the rejection is not clear.

Dependent claims 13 and 14 arguments

Claim 13 recites supplying a compressed air bleed valve between the compressed air source and the sand outlet. Claim 14 recites operating the bleed valve to release excess pressure. Flock, Asplin '763 and Lightle do not teach or suggest these features.

Flock and Asplin '763 do not disclose a bleed valve. Lightle is relied upon to teach a compressed air source and a plurality of valve assemblies 30, 32 for controlling the flow of compressed air. However, none of the valve assemblies 30, 32 of Lightle is disclosed as a bleed valve.

Since Flock, Asplin '763 and Lightle do not teach a bleed valve, a prima facie case of obviousness has not been established against claim 13. Further, because none of the references teach a bleed valve, they cannot teach operating the bleed valve to release excess pressure as recited in claim 14.

Independent claim 17 arguments

Appellant respectfully submits that Flock, Asplin '763 and Lightle do not teach or suggest a method of lifting and leveling a slab by using compressed air to lift the slab and dried sand to stabilize and hold the slab in a desired position as claimed.

A) Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest lifting with compressed air to create a settle cavity between the slab and the ground, leveling the ground with well dried mason's sand carried by the compressed air, and repeating the lifting and leveling steps until the slab is at the desired level.

The same arguments presented above for claim 12 with respect to this feature apply to claim 17 as well. Those arguments, which are not repeated here, are incorporated by reference.

Therefore, Flock, Asplin '763 and Lightle do not teach or suggest lifting a slab with compressed air to create a settle cavity between the slab and the ground, and leveling the ground with well dried mason's sand carried by the compressed air.

B) Further, Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest mixing the sand and the compressed air in a mixing chamber having a smaller air source hose fitted inside of a larger diameter sand outlet such that the smaller air source extends into the center section of the larger diameter sand outlet so as to create a venturi effect.

The rejection is silent as to which reference meets this feature. Flock and Asplin '763 do not teach a mixing chamber as claimed.

Lightle teaches that sand and compressed air are each introduced into a sand gun 21, 22, with sand dropping down into the housing 23 of the gun via a hopper 19 and falling into the pockets 41. Column 3, lines 39-46. The compressed air enters through inlet pipe 31, and passes through the pockets 41 where the air picks up the sand and exits through the pipe 25. Column 3, lines 35-39. Lightle does not disclose mixing the sand and the compressed air in a mixing chamber having a smaller air source hose fitted inside of a larger diameter sand outlet such that the smaller air source extends into the center section of the larger diameter sand outlet so as to create a venturi effect. Lightle does not disclose a smaller air source hose fitting inside a larger diameter sand outlet, nor the creation of a venturi effect.

Therefore, claim 17 is patentable over Flock, Asplin '763 and Lightle.

Independent claim 22

Appellant respectfully submits that Flock, Asplin '763 and Lightle do not teach or suggest a method of lifting and leveling a slab as claimed.

A) Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest mixing sand and compressed air in a venturi chamber. The rejection is silent as to which reference meets this feature. Flock and Asplin '763 do not teach a venturi chamber, or mixing sand and compressed air in a venturi chamber.

Lightle teaches that sand and compressed air are each introduced into a sand gun 21, 22, with sand dropping down into the housing 23 of the gun via a hopper 19 and falling into the pockets 41. Column 3, lines 39-46. The compressed air enters through inlet pipe 31, and passes through the pockets 41 where the air picks up the sand and exits through the pipe 25. Column 3, lines 35-39. Lightle does not disclose mixing the sand and the compressed air in a venturi chamber, or mixing the sand and compressed air in anything that functions based on a venturi effect.

For at least this reason, claim 22 is patentable over Flock, Asplin '763 and Lightle.

B) In addition, Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest inserting a nozzle into a hole in a manner to create an airtight seal between the nozzle and the slab, the nozzle not penetrating into ground underneath the slab.

Flock discloses inserting the filling stem 9 into a hole 11, or a tube 17 into a hole, and down into the ground beneath the slab. Page 1, lines 87-97; page 2, lines 45-54; Figures 1 and 4. Flock does not disclose that there is an airtight seal between the stem 9/nozzle 17 and the hole. Flock does not require an airtight seal because Flock does not rely on compressed air to lift the slab. Instead, Flock inserts the end of the stem 9/tube 17 into the ground, which eliminates the need for a seal with the hole.

Asplin '763 and Lightle also do not disclose an airtight seal between a nozzle and a slab.

For at least this reason, claim 22 is patentable over Flock, Asplin '763 and Lightle.

C) In addition, Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest introducing the compressed air and sand mixture in a first burst underneath the slab...wherein the compressed air of the mixture of the burst raises the slab upward to form a cavity between the slab and ground and the sand of the mixture of the burst partially fills the cavity.

Flock is characterized in the rejection as lifting and leveling a slab using compressed air to lift the slab. This is incorrect. Flock does not disclose the use of compressed air to lift the slab. While Flock does disclose that material is forced under the slab, there is no disclosure that

the injected material is carried by or mixed with compressed air. Therefore, Flock does not lift the slab with compressed air.

Furthermore, the injected material of Flock does not lift the slab such that a cavity is created between the slab and the ground. As clearly explained in Flock, the tip of the filling stem 9 is inserted a distance into the earth beneath the slab 6'. Page 1, lines 87-90 and 95-97; page 2, lines 34-36. When the filling material is injected, it fills up any subterranean cavities or fissures, and then causes the surrounding earth to become compacted. Page 2, lines 19-22. Once the earth has reached a substantially incompressible state, it will react against the subsoil and transmit the filling pressure to the lower side of the pavement. Page 2, lines 22-26. Pressure forces are transmitted to points a, b, c, d, e through the soil, with each force having a vertical lifting component tending to lift the sunken section 6'. Page 2, lines 26-32.

At no time in Flock is the slab lifted to create a cavity between the slab and the soil. In fact, it appears from Flock that the slab 6' always rests on top of the soil 5. This is consistent with the operation of Flock which relies on the soil 5 to lift the slab 6' upward. There is no clear disclosure in Flock that injected material directly lifts the slab upward to create a cavity.

Asplin '763 teaches using hydraulic lifting towers 12 to lift a sunken slab to create a fill area, followed by injection of mason's sand carried by compressed air using a sandblaster wand 40. Column 2, lines 42-52; column 4, lines 25-33; Figures 6-8. Asplin '763 does not teach lifting a slab using compressed air to create a cavity.

Lightle teaches a mechanism for moving material such as sand using compressed air. Column 1, lines 6-9; column 2, lines 8-15. The sand is used to fill a sand trap on a golf course. Lightle does not teach lifting a slab using compressed air to create a cavity.

Therefore, Flock, Asplin '763 and Lightle do not teach or suggest lifting a slab with compressed air to create a cavity between the slab and the ground.

For at least this reason, claim 22 is patentable over Flock, Asplin '763 and Lightle.

Dependent claim 24 argument

Claim 24 recites patching the hole. This feature is rejected as being obvious because the rejection asserts that such a step is mandatory to prevent pedestrians being hurt, and to prevent rainwater from entering the holes and causing settling of the slab.

Appellant traverses. If the slab is on private property or in areas where pedestrian traffic is not a concern, then the hole need not be patched. Therefore, that reasoning provided in the rejection is unfounded. Further, rainwater will absorb into the ground from surrounding areas or through holes or cracks in the slab and come into contact with the injected sand regardless of whether or not the hole is patched. Therefore, that reasoning provided in the rejection is unfounded.

It is simply not true that the hole must be patched. Therefore, a prima facie case of obviousness has not been established with respect to claim 24.

Independent claim 25 arguments

Appellant respectfully submits that Flock, Asplin '763 and Lightle do not teach or suggest a method of lifting and leveling a slab as claimed.

Flock, Asplin '763 and Lightle, individually or in combination, do not teach or suggest introducing a pressurized fluid media underneath the slab so that the introduced pressurized fluid media lifts the slab upward to form a cavity under the slab, and introducing dried material different from the pressurized media into the cavity to at least partially fill the cavity.

None of the cited references use a first pressurized fluid media introduced under the slab to lift the slab to form a cavity, and a dried material different from the pressurized media that is introduced into the cavity to at least partially fill the cavity.

Flock discloses introducing a single material under the slab. As discussed above for claim 12, it is Appellant's position that the injected material of Flock does not lift the slab to create a cavity under the slab. However, regardless of whether or not the injected material in Flock lifts the slab, it is abundantly clear that Flock does not introduce a pressurized media to lift the slab, and does not introduce a dried material different from the pressurized media into the cavity to at least partially fill the cavity. There is simply no mention in Flock of using one media

to lift the slab, and a second, dried material that is introduced into the cavity to partially fill the cavity.

Asplin '763 and Lightle are likewise silent about using one media to lift the slab, and a second, dried material to at least partially fill the cavity.

For at least these reasons, claim 25 is patentable over Flock, Asplin '763 and Lightle.

Dependent claims 26 and 27 arguments

Flock, Asplin '763 and Lightle do not teach the second, dried material as being a dried granular material as recited in claim 26, or the granular material as being dried masons sand as recited in claim 27. As discussed above for claim 25, the cited references do not teach introducing a dried material different than the pressurized material used to lift the slab. Therefore, the cited references cannot teach a dried granular material, or a dried masons sand, as claimed.

Dependent claim 28 argument

Flock, Asplin '763 and Lightle do not teach introducing a dried material different than the pressurized material used to lift the slab. Therefore, the cited references cannot teach introducing the dried material until the slab is at the desired level.

Dependent claim 29 argument

Flock, Asplin '763 and Lightle do not teach that the pressurized fluid media is compressed air, and to use simultaneous injection of a mixture of compressed air and dried material.

2. 35 U.S.C. 103(a) rejection of claims 18-21 and 23 over Flock, Asplin '763, Lightle and Poulter

Dependent claim 20 argument

Claim 20 recites patching the holes to match the slab. This feature is rejected as being obvious because the rejection asserts that such a step is mandatory to prevent pedestrians being hurt, and to prevent rainwater from entering the holes and causing settling of the slab.

Appellant traverses. If the slab is on private property or in areas where pedestrian traffic is not a concern, then the holes need not be patched. Therefore, that reasoning provided in the rejection is unfounded. Further, rainwater will absorb into the ground from surrounding areas or through holes or cracks in the slab and come into contact with the injected sand regardless of whether or not the holes are patched. Therefore, that reasoning provided in the rejection is unfounded.

It is simply not true that the holes must be patched. Therefore, a prima facie case of obviousness has not been established with respect to claim 20.

Dependent claim 21 argument

Claim 21 recites supplying a compressed air bleed valve between the compressed air source and the sand outlet.

As discussed above for claim 13, Flock and Asplin '763 do not disclose a bleed valve. Lightle is relied upon to teach a compressed air source and a plurality of valve assemblies 30, 32 for controlling the flow of compressed air. However, none of the valve assemblies 30, 32 of Lightle is disclosed as a bleed valve. Poulter is likewise silent regarding a bleed valve.

Since Flock, Asplin '763, Lightle and Poulter do not teach a bleed valve, a prima facie case of obviousness has not been established against claim 21.

3. 35 U.S.C. 103(a) rejection of claims 12, 17, 18, and 25-29 over Flock and Asplin '914

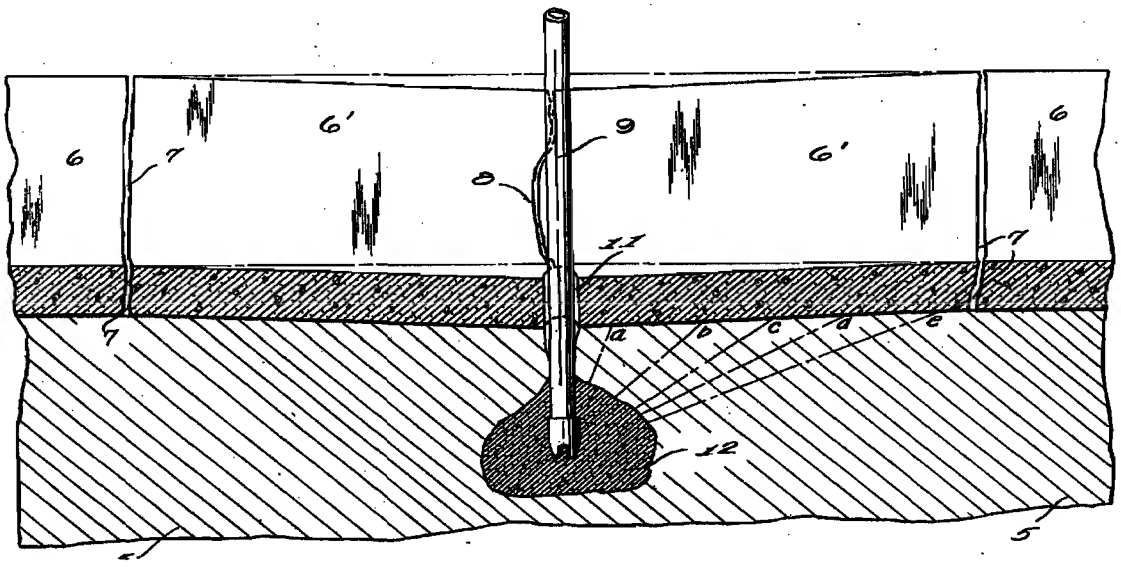
Independent claim 12 arguments

Appellant respectfully submits that Flock and Asplin '914 do not teach or suggest a method of lifting and leveling a slab by using compressed air to lift the slab and dried sand to stabilize and hold the slab in a desired position as claimed.

A) Flock and Asplin '914, individually or in combination, do not teach or suggest lifting with the compressed air to create a settle cavity between the slab and the ground, leveling the ground with the well dried mason's sand carried by the compressed air, and repeating the lifting and leveling steps until the slab is at the desired level.

Flock is characterized in the rejection as injecting a pressurized filler material into a cavity 12. The injected material of Flock does not lift the slab such that a settle cavity is created between the slab and the ground. As clearly explained in Flock, the tip of the filling stem 9 is inserted a distance into the earth beneath the slab 6'. Page 1, lines 87-90 and 95-97; page 2, lines 34-36. When the filling material is injected, it fills up any subterranean cavities or fissures, and then causes the surrounding earth to become compacted. Page 2, lines 19-22. Once the earth has reached a substantially incompressible state, it will react against the subsoil and transmit the filling pressure to the lower side of the pavement. Page 2, lines 22-26. Pressure forces are transmitted to points a, b, c, d, e through the soil, with each force having a vertical lifting component tending to lift the sunken section 6'. Page 2, lines 26-32.

Figure 1 of Flock explaining this concept is copied below. The filling stem 9 is inserted into the soil 5. Injected fill material 12 fills any cavities, and acts against the soil 5. The soil 5 then transmits the vertical pressure forces to points a, b, c, d, e so as to lift the slab 6'.



A similar concept is disclosed in Figure 4 of Flock, where injected material 12 fills any subterranean cavities or fissures, compacts the surrounding soil 5, and lifting forces are transmitted through the soil 5 to lift the slab 6'.

At no time in Flock is the slab lifted to create a settle cavity between the slab and the soil. In fact, it appears from Flock that the slab 6' always rests on top of the soil 5. This is consistent with the operation of Flock which relies on the soil 5 to lift the slab 6' upward. There is no clear disclosure in Flock that injected material directly lifts the slab upward to create a settle cavity.

The rejection also asserts that the disclosure in Flock regarding the use of earth or clay as the filler material inherently includes sand.

Asplin '914 is characterized in the rejection as teaching the use of dry sand in mixing mortars and cement, and using dried sand in sand blaster. From this, the rejection concludes that it would have been obvious to use a mixture of compressed air and sand to raise and level the slab.

The proposed combination is untenable. The assertion that "earth or clay" disclosed by Flock inherently includes dried sand is without support. There is no indication whatsoever from Flock that the injected material should be dried, let along dried sand. Further, Asplin '914 does not contain any disclosure regarding raising and leveling slabs. There is no reason why a person of ordinary skill in the art, faced with the problem of raising and leveling slabs, would turn to Asplin '914 for a teaching of using dried sand and compressed air. Since Asplin '914 in no way relates to raising and leveling slabs, the proposed combination is only reached using impermissible hindsight after reading Appellant's disclosure.

Further, even if Flock and Asplin '914 are combined, the resulting combination would not operate as claimed. As discussed above, Flock discloses that the end of the stem 9 should be inserted into the soil under the slab. If a mixture of sand and compressed air were introduced through the stem 9 of Flock, the mixture would be introduced into the soil and there is no indication that the compressed air would in anyway raise the slab to create a cavity that is then filled by the sand. Instead, what would likely happen is that the compressed air would react against the subsoil 5 helping to compact it, with the sand filling any voids, until the vertical

lifting forces of the soil start acting on the slab. Therefore, the mixture of compressed air and sand would likely function in a similar manner as the injected material disclosed by Flock because the end of the stem 9 is inserted into the soil 5.

For at least this reason, claim 12 is patentable over Flock and Asplin '914.

B) In addition, Appellant respectfully submits that Flock does not teach supplying a storage tank filled with aggregate such as earth or clay, or supplying a pressure source in fluid tight connection with the storage tank, as asserted in the rejection. Although Flock discloses that the fill material is injected under pressure, where the material comes from and how the pressure is created is simply not disclosed. It is possible that the fill material comes from a source other than a storage tank, such as a loose pile of aggregate. Further, the pressure could be created by means other than a compressed air source in fluid tight connection with a sand outlet of the storage tank. For example, a mechanical ramming effect such as taught in Figure 4 of Flock, could be used.

For at least this reason, claim 12 is patentable over Flock and Asplin '914.

Independent claim 17 arguments

Appellant respectfully submits that Flock and Asplin '914 do not teach or suggest a method of lifting and leveling a slab by using compressed air to lift the slab and dried sand to stabilize and hold the slab in a desired position as claimed.

A) Flock and Asplin '914, individually or in combination, do not teach or suggest lifting with the compressed air to create a settle cavity between the slab and the ground, leveling the ground with the well dried mason's sand carried by the compressed air, and repeating the lifting and leveling steps until the slab is at the desired level.

The same arguments presented above for claim 12 with respect to this feature apply to claim 17 as well. Those arguments, which are not repeated here, are incorporated by reference.

Therefore, Flock and Asplin '914 do not teach or suggest lifting a slab with compressed air to create a settle cavity between the slab and the ground, and leveling the ground with well dried mason's sand carried by the compressed air.

B) Further, Flock and Asplin '914, individually or in combination, do not teach or suggest mixing the sand and the compressed air in a mixing chamber having a smaller air source hose fitted inside of a larger diameter sand outlet such that the smaller air source extends into the center section of the larger diameter sand outlet so as to create a venturi effect.

The rejection is completely silent as to this feature. Flock and Asplin '914 do not teach a mixing chamber as claimed.

Therefore, claim 17 is patentable over Flock and Asplin '914.

Dependent claim 18 arguments

Flock and Asplin '914, individually or in combination, do not teach or suggest supplying a sand shutoff valve that may be adjusted so as to control the flow of sand to the mixing chamber.

The rejection is completely silent as to this feature. Flock and Asplin '914 do not teach a supplying a sand shutoff valve as claimed.

Independent claim 25 arguments

Appellant respectfully submits that Flock and Asplin '914 do not teach or suggest a method of lifting and leveling a slab as claimed.

Flock and Asplin '914, individually or in combination, do not teach or suggest introducing a pressurized fluid media underneath the slab so that the introduced pressurized fluid media lifts the slab upward to form a cavity under the slab, and introducing dried material different from the pressurized media into the cavity to at least partially fill the cavity.

Flock and Asplin '914 do not disclose using a first pressurized fluid media introduced under the slab to lift the slab to form a cavity, and a dried material different from the pressurized media that is introduced into the cavity to at least partially fill the cavity.

Flock discloses introducing a single material under the slab. As discussed above for claim 12, it is Appellant's position that the injected material of Flock does not lift the slab to create a cavity under the slab. However, regardless of whether or not the injected material in Flock lifts the slab, it is abundantly clear that Flock does not introduce a pressurized media to lift the slab, and does not introduce a dried material different from the pressurized media into the cavity to partially fill the cavity. There is simply no mention in Flock of using one media to lift the slab, and a second, dried material that is introduced into the cavity to fill the cavity.

Asplin '914 is likewise silent about using one media to lift the slab, and a second, dried material to at least partially fill the cavity.

For at least these reasons, claim 25 is patentable over Flock and Asplin '914.

Dependent claims 26 and 27 arguments

Flock and Asplin '914 do not teach the second, dried material as being a dried granular material as recited in claim 26, or the granular material as being dried masons sand as recited in claim 27. As discussed above for claim 25, the cited references do not teach introducing a dried material different than the pressurized material used to lift the slab. Therefore, the cited references cannot teach a dried granular material, or a dried masons sand, as claimed.

Dependent claim 28 argument

Flock and Asplin '914 do not teach introducing a dried material different than the pressurized material used to lift the slab. Therefore, the cited references cannot teach introducing the dried material until the slab is at the desired level.

Dependent claim 29 argument

Flock and Asplin '914 do not teach that the pressurized fluid media is compressed air, and to use simultaneous injection of a mixture of compressed air and dried material.

4. 35 U.S.C. 103(a) rejection of claims 19-24 over Flock, Asplin '914 and Poulter

Dependent claim 20 argument

Claim 20 recites patching the holes to match the slab. This feature is rejected as being obvious because the rejection asserts that such a step is mandatory to prevent pedestrians being hurt, and to prevent rainwater from entering the holes and causing settling of the slab.

Appellant traverses. If the slab is on private property or in areas where pedestrian traffic is not a concern, then the holes need not be patched. Therefore, that reasoning provided in the rejection is unfounded. Further, rainwater will absorb into the ground from surrounding areas or through holes or cracks in the slab and come into contact with the injected sand regardless of whether or not the holes are patched. Therefore, that reasoning provided in the rejection is unfounded.

It is simply not true that the holes must be patched. Therefore, a prima facie case of obviousness has not been established with respect to claim 20.

Dependent claim 21 argument

Claim 21 recites supplying a compressed air bleed valve between the compressed air source and the sand outlet.

Flock, Asplin '914 and Poulter do not disclose a bleed valve, nor does the rejection address this feature. Therefore, a prima facie case of obviousness has not been established against claim 21.

Independent claim 22 arguments

Appellant respectfully submits that Flock, Asplin '914 and Poulter do not teach or suggest a method of lifting and leveling a slab as claimed.

A) Flock, Asplin '914 and Poulter, individually or in combination, do not teach or suggest mixing sand and compressed air in a venturi chamber. The rejection is silent as to which

reference meets this feature. Flock, Asplin '914 and Poulter do not teach a venturi chamber, or mixing sand and compressed air in a venturi chamber, or mixing the sand and compressed air in anything that functions based on a venturi effect.

For at least this reason, claim 22 is patentable over Flock, Asplin '914 and Poulter.

B) In addition, Flock, Asplin '914 and Poulter, individually or in combination, do not teach or suggest inserting a nozzle into a hole in a manner to create an airtight seal between the nozzle and the slab, the nozzle not penetrating into ground underneath the slab.

Flock discloses inserting the filling stem 9 into a hole 11, or a tube 17 into a hole and down into the ground beneath the slab. Page 1, lines 87-97; page 2, lines 45-54; Figures 1 and 4. Flock does not disclose that there is an airtight seal between the stem 9/nozzle 17 and the hole. Flock does not require an airtight seal because Flock does not rely on compressed air to lift the slab. Instead, Flock inserts the end of the stem 9/tube 17 into the ground, which eliminates the need for a seal with the hole.

Asplin '914 and Poulter also do not disclose an airtight seal between a nozzle and a slab. Poulter does disclose that a pump 4 can be screwed into a lining 3. However, there is no disclosure that the resulting connection creates an airtight seal.

For at least this reason, claim 22 is patentable over Flock, Asplin '914 and Poulter.

C) In addition, Flock, Asplin '914 and Poulter, individually or in combination, do not teach or suggest introducing the compressed air and sand mixture in a first burst underneath the slab...wherein the compressed air of the mixture of the burst raises the slab upward to form a cavity between the slab and ground and the sand of the mixture of the burst partially fills the cavity.

Flock does not disclose the use of compressed air to lift the slab. While Flock does disclose that material is forced under the slab, there is no disclosure that the injected material is carried by or mixed with compressed air. Therefore, Flock does not lift the slab with compressed air.

Furthermore, the injected material of Flock does not lift the slab such that a cavity is created between the slab and the ground. As clearly explained in Flock, the tip of the filling stem 9 is inserted a distance into the earth beneath the slab 6'. Page 1, lines 87-90 and 95-97; page 2, lines 34-36. When the filling material is injected, it fills up any subterranean cavities or fissures, and then causes the surrounding earth to become compacted. Page 2, lines 19-22. Once the earth has reached a substantially incompressible state, it will react against the subsoil and transmit the filling pressure to the lower side of the pavement. Page 2, lines 22-26. Pressure forces are transmitted to points a, b, c, d, e through the soil, with each force having a vertical lifting component tending to lift the sunken section 6'. Page 2, lines 26-32.

At no time in Flock is the slab lifted to create a cavity between the slab and the soil. In fact, it appears from Flock that the slab 6' always rests on top of the soil 5. This is consistent with the operation of Flock which relies on the soil 5 to lift the slab 6' upward. There is no clear disclosure in Flock that injected material directly lifts the slab upward to create a cavity.

Asplin '914 does contain any disclosure about lifting a slab in any manner, let alone lifting a slab using compressed air to create a cavity.

Poulter injects material under a slab 1 to raise the slab. The injected material is not a mixture of sand and compressed air, where the compressed air raises the slab and the sand partially fills the cavity.

Therefore, Flock, Asplin '914 and Poulter do not teach or suggest lifting a slab with compressed air to create a cavity between the slab and the ground.

For at least this reason, claim 22 is patentable over Flock, Asplin '914 and Poulter.

Dependent claim 24 argument

Claim 24 recites patching the hole. This feature is rejected as being obvious because the rejection asserts that such a step is mandatory to prevent pedestrians being hurt, and to prevent rainwater from entering the holes and causing settling of the slab.

Appellant traverses. If the slab is on private property or in areas where pedestrian traffic is not a concern, then the hole need not be patched. Therefore, that reasoning provided in the rejection is unfounded. Further, rainwater will absorb into the ground from surrounding areas or

through holes or cracks in the slab and come into contact with the injected sand regardless of whether or not the hole is patched. Therefore, that reasoning provided in the rejection is unfounded.

It is simply not true that the hole must be patched. Therefore, a prima facie case of obviousness has not been established with respect to claim 24.

SUMMARY

For the reasons above, Appellant believes that the Examiner's rejections of claims 12-29 are erroneous and reversal of the rejections is respectfully requested.

Please charge any additional fees or credit any overpayment to Deposit Account No. 50-3478.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER
& LARSON P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
612.455.3800

Dated: May 20, 2009

By _____
James A. Larson
Reg. No. 40,443

CLAIMS APPENDIX

1-11. (Canceled)

12. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position said method comprising the steps of:

supplying a sand storage tank filled with a well dried mason's sand said storage tank having a sand outlet;

supplying a compressed air source in fluid tight connection with said sand outlet;

mixing said sand and said compressed air in a mixing chamber;

delivering said sand and air mixture to an injector gun via an elongate fluid tight hose said gun further having a gun nozzle;

drilling a hole in said slab to be leveled;

attaching said gun nozzle to said drilled hole;

operating said injector gun in bursts so as to provide compressed air and sand;

lifting with air pressure, momentarily, said slab to a height above the desired final level with the compressed air supplied by said bursts, such that a settle cavity filled with compressed air sufficient to raise said slab above the ground is created between said slab and said ground until said compressed air escapes from said settle cavity allowing said slab to drop back in contact with said ground such that said slab is supported by said ground and said sand;

leveling said ground with said well dried mason's sand carried by said compressed air in said burst such that said well dried mason's sand may move freely within said settle cavity momentarily created by said compressed air; and

repeating said lifting and leveling steps until said slab is at the desired level and resting upon said well dried mason's sand.

13. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 12 further comprising the step of supplying a compressed air bleed valve between said compressed air source and sand outlet.

14. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 13 further comprising the step of operating said compressed air bleed valve to release excess pressure.

15. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 14 further comprising the step of supplying a sand shutoff valve between said sand storage tank and said mixing chamber.

16. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 15 further comprising the step of adjusting said sand shutoff valve so as to control the flow of sand to said mixing chamber.

17. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position said method comprising the steps of:

drilling a strategically placed hole in said slab;

supplying a sand storage tank filled with sand said storage tank having a sand outlet;

supplying a compressed air source in fluid tight connection with said sand outlet;

mixing said sand and said compressed air in a mixing chamber said mixing chamber having a smaller air source hose fitted inside of a larger diameter sand outlet such that said smaller air source extends into the center section of said larger diameter sand outlet so as to create a venturi effect;

delivering said sand and air mixture to an injector gun via an elongate fluid tight hose said injector gun further having a gun nozzle for connection with said hole;

attaching said gun nozzle to said drilled hole; and

operating said injector gun so as to provide compressed air and well dried mason's sand;

lifting with air pressure, momentarily, said slab to a height above the desired final level with the compressed air supplied by said injector gun, such that a settle cavity filled with compressed air sufficient to raise said slab above the ground is created between said slab and said ground until said compressed air escapes from said settle cavity allowing said slab to drop back in contact with said ground such that said slab is supported by said ground and said sand;

leveling said ground with said well dried mason's sand carried by said compressed air such that said well dried mason's sand may move freely within said settle cavity momentarily created by said compressed air; and

repeating said lifting and leveling steps until said slab is at the desired level and resting upon said well dried mason's sand.

18. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 17 further comprising the step of supplying a sand shutoff valve that may be adjusted so as to control the flow of sand to said mixing chamber.

19. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 18 further comprising the step of drilling a second strategically placed hole in said slab; moving said gun nozzle to said second hole and repeating said operating step.

20. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 19 further comprising the step of patching said holes to match said slab.

21. A method of lifting and leveling a slab by using compressed air to lift said slab and dried sand to stabilize and hold said slab in a desired position as in claim 20 further comprising the step of supplying a compressed air bleed valve between said compressed air source and sand outlet so as to bleed of excess air.

22. A method of lifting and leveling a slab comprising:

drilling a hole through the slab to be leveled;

mixing sand and compressed air in a venturi chamber to create a compressed air and sand mixture;

introducing the compressed air and sand mixture in a first burst underneath the slab via a nozzle that is inserted into the hole in a manner to create an airtight seal between the nozzle and the slab, the nozzle not penetrating into ground underneath the slab, wherein the compressed air of the mixture of the burst raises the slab upward to form a cavity between the slab and ground and the sand of the mixture of the burst partially fills the cavity; and

repeating the introduction of the compressed air and sand mixture in one or more additional bursts underneath the slab until the slab is at the desired level and resting upon the sand.

23. The method of claim 22 further comprising drilling a second hole through the slab, inserting the nozzle into the second hole in a manner to create an airtight seal between the nozzle and the slab, and introducing the compressed air and sand mixture in a burst underneath the slab through the nozzle.

24. The method of claim 22 further comprising patching the hole.

25. A method of lifting and leveling a slab, comprising:

introducing a pressurized fluid media underneath the slab so that the introduced pressurized fluid media lifts the slab upward to form a cavity under the slab; and

introducing dried material different from the pressurized media into the cavity to at least partially fill the cavity.

26. The method of claim 25, wherein introducing dried material comprises introducing a dried granular material.

27. The method of claim 26, wherein the dried granular material comprises dried masons sand.

28. The method of claim 25, comprising introducing dried material until the slab is at the desired level and resting upon the dried material.

29. The method of claim 25, wherein the pressurized fluid media comprises compressed air, and the compressed air and dried material are introduced simultaneously in a mixture.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None